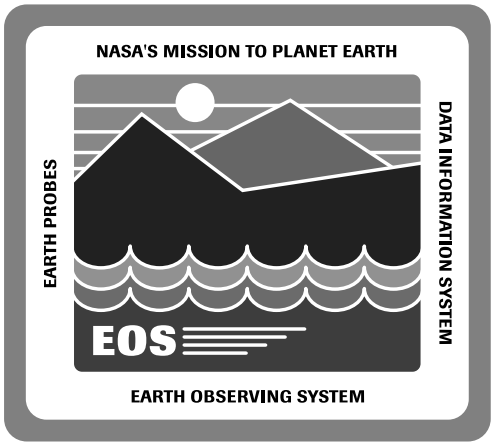
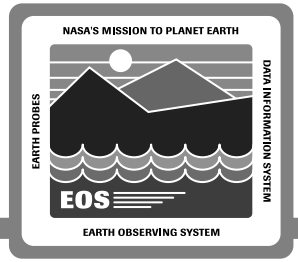


Release A DAAC LANs

Ezra Jalleta

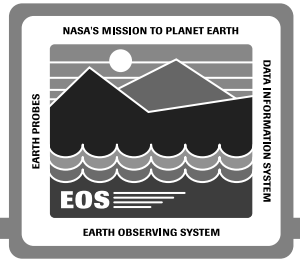
16 February 1995

Overview



- **Design**
  - **Requirements**
  - **Description**
- **Release A DAAC LANs**
  - **GSFC**
  - **LaRC**
  - **MSFC**
  - **EDC**
  - **Design Summary**
- **Migration Strategy**

Design Requirements



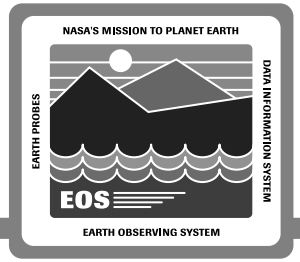
- **Static modeling data was used for initial traffic size estimation of major flows (between subsystems)**

- **Security implemented using filtering on the network level (higher level applications will use DCE's security features)**
  - **No user access to L0 Ingest**

- **RMA**
  - **Networks need to contribute to RMA requirements as allocated to functional strings**

- **Scalability**
  - **Network should accommodate growth with minimum breakage**

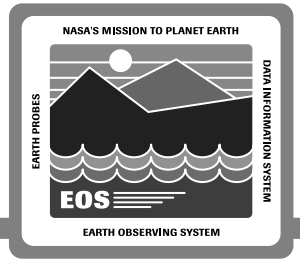
Design Requirements



- **Evolvability**
  - **High speed LANs will be needed to accommodate the higher processing volumes and I/O rates of the future**

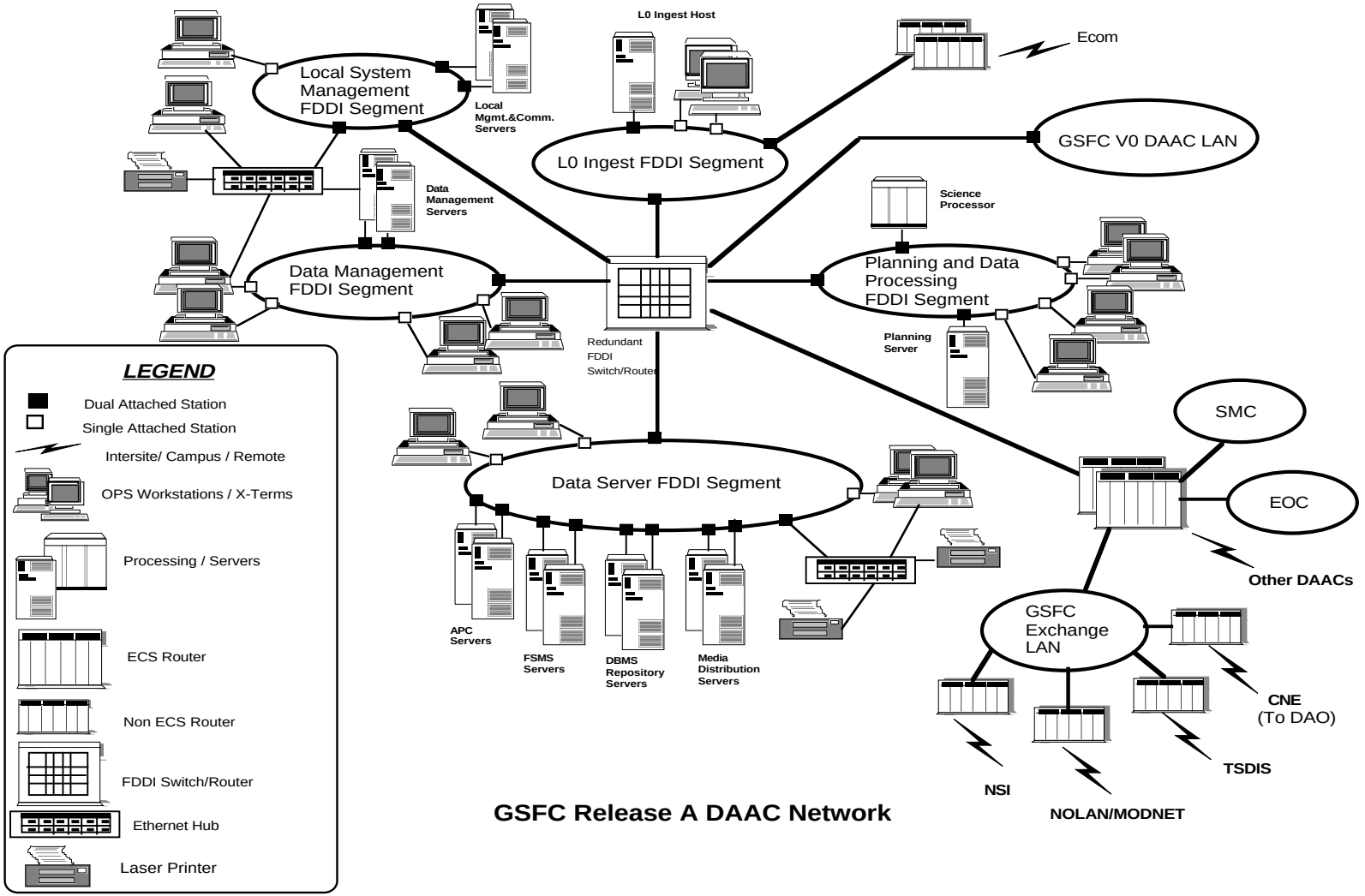
- **Management**
  - **Network should be manageable**

Design Description



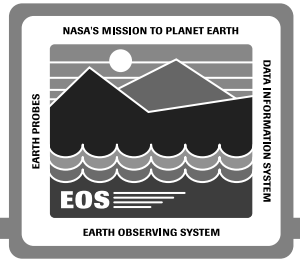
- **Figures only show network attached devices**
- **All Release A DAAC LANs will be FDDI based with some Ethernet insertions to support printers**
  - **A redundant FDDI switch/router will connect FDDI rings**
  - **Router will perform the necessary network level filtering for security**
- **Servers and processors will use single DAS cards that are dual homed to two concentrators per segment**
- **Workstations will use SAS cards. They will be distributed among concentrators**
- **LSM Servers will be on a FDDI ring directly connected to the FDDI switch/router**
- **FDDI rings will be formed using SNMP manageable FDDI concentrators**

Release A DAAC LAN at GSFC



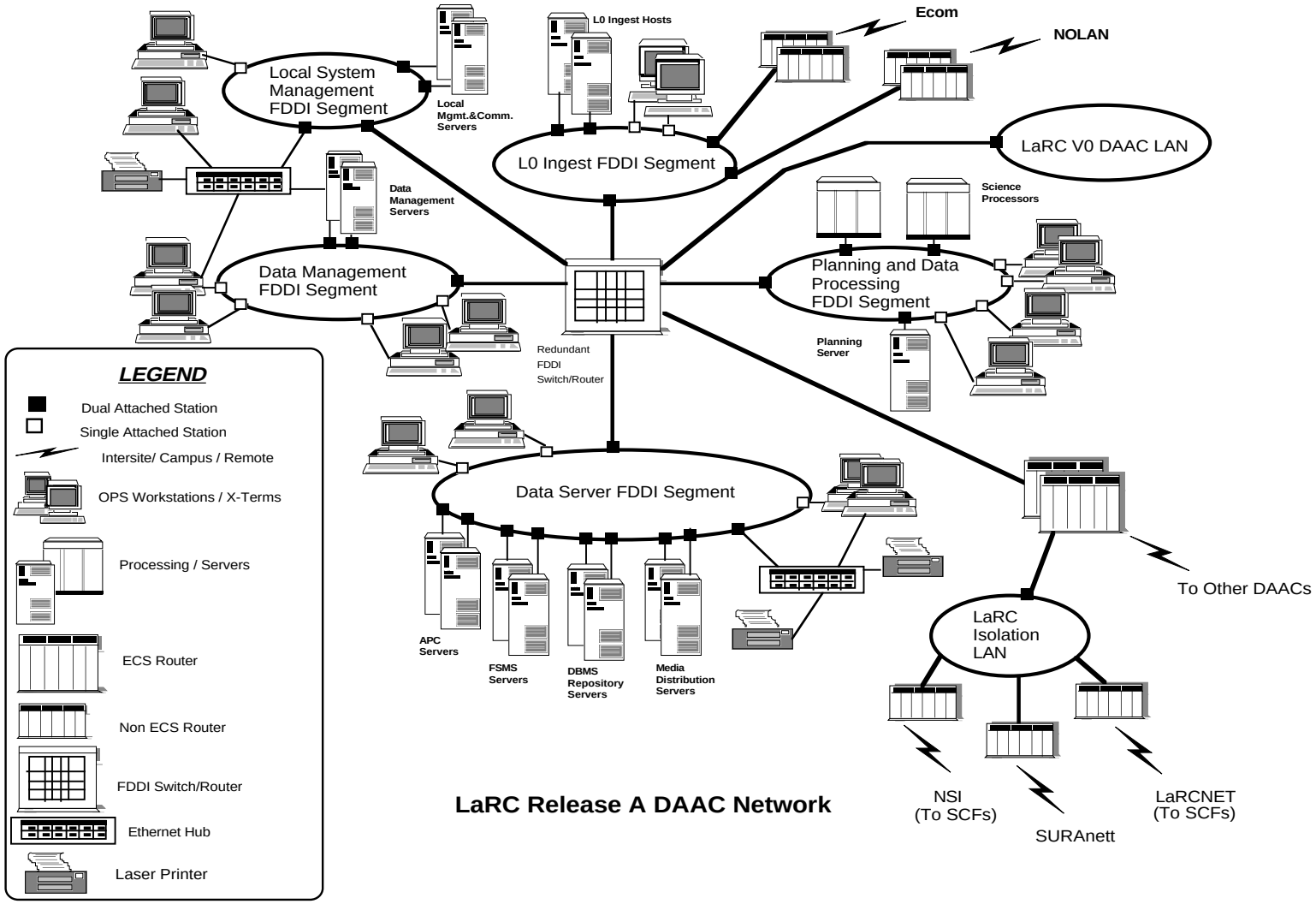
GSFC Release A DAAC Network

Release A DAAC LAN at GSFC



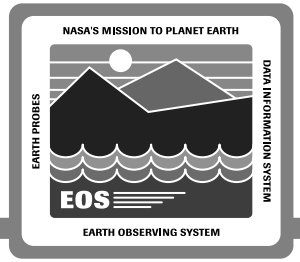
- **GSFC DAAC activities that the DAAC network will support during RA include:**
  - **AM-1 ingest testing**
  - **Archival and distribution of TSDIS data**
  - **V0 data migration**
  - **AI&T for AM-1**
- **The GSFC (ESDIS) exchange LAN from IR-1 will continue to support ECS, TSDIS, NSI, NOLAN and CNE traffic exchange**
- **There may be two exchange LANs by Release B to accommodate increasing pull side traffic exchange mainly between NSI and ECS**
- **Ecom routers will directly connect to the L0 Ingest FDDI segment**

Release A DAAC LAN at LaRC



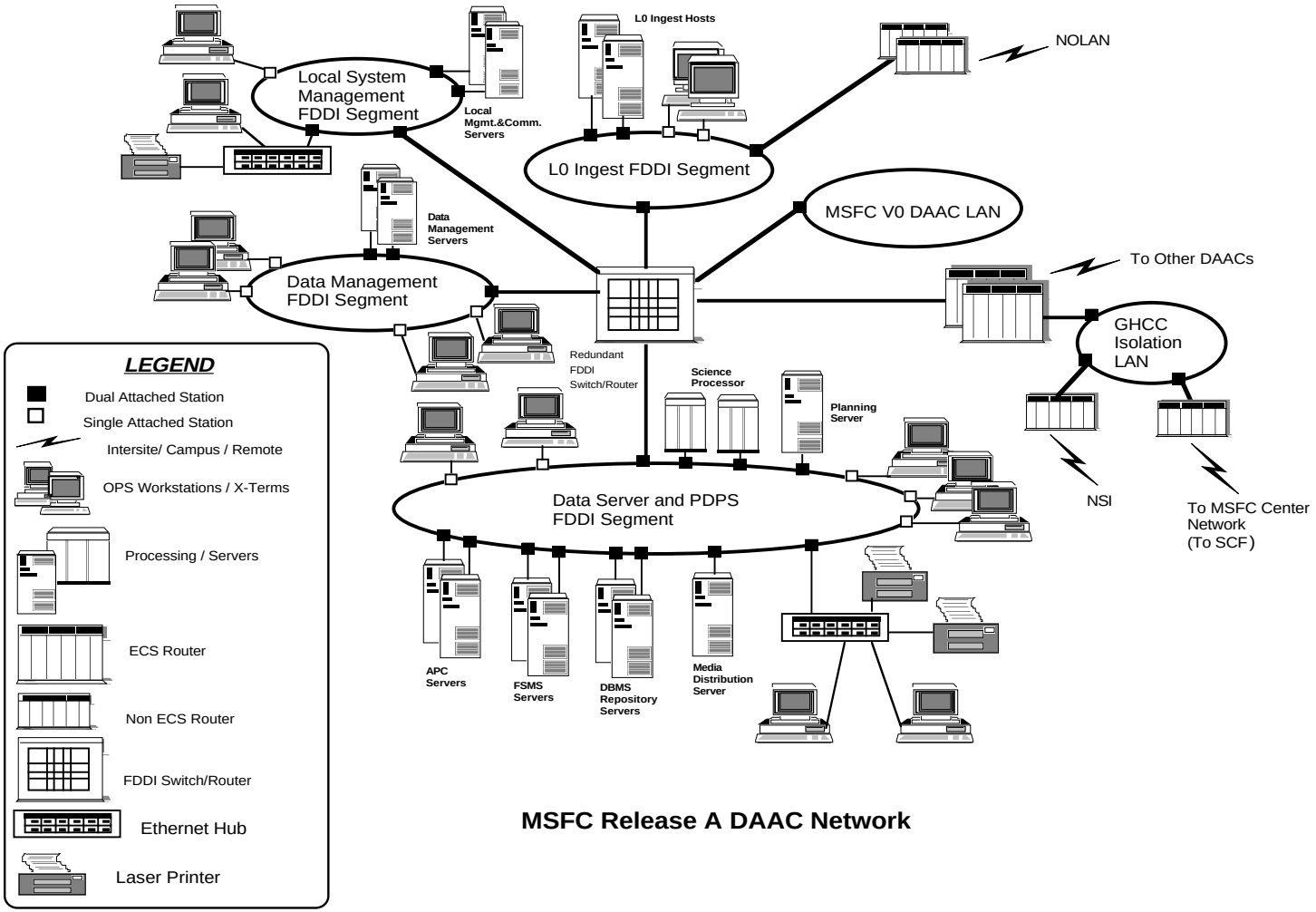
LaRC Release A DAAC Network

Release A DAAC LAN at LaRC



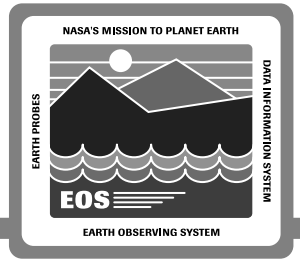
- **LaRC DAAC activities that the DAAC network will support during RA include:**
  - **AM-1 ingest testing**
  - **L0 data ingest for TRMM/CERES**
  - **Processing for TRMM/CERES**
  - **V0 data migration**
  - **AI&T for AM-1**
- **The LaRCNET FDDI IsoLAN will support ECS, NSI and LaRCNET traffic exchange**
- **A separate exchange LAN may be created by early Release B to accommodate increasing traffic between NSI and ECS**
- **Ecom and NOLAN routers will directly connect to the L0 Ingest FDDI segment**

Release A DAAC LAN at MSFC



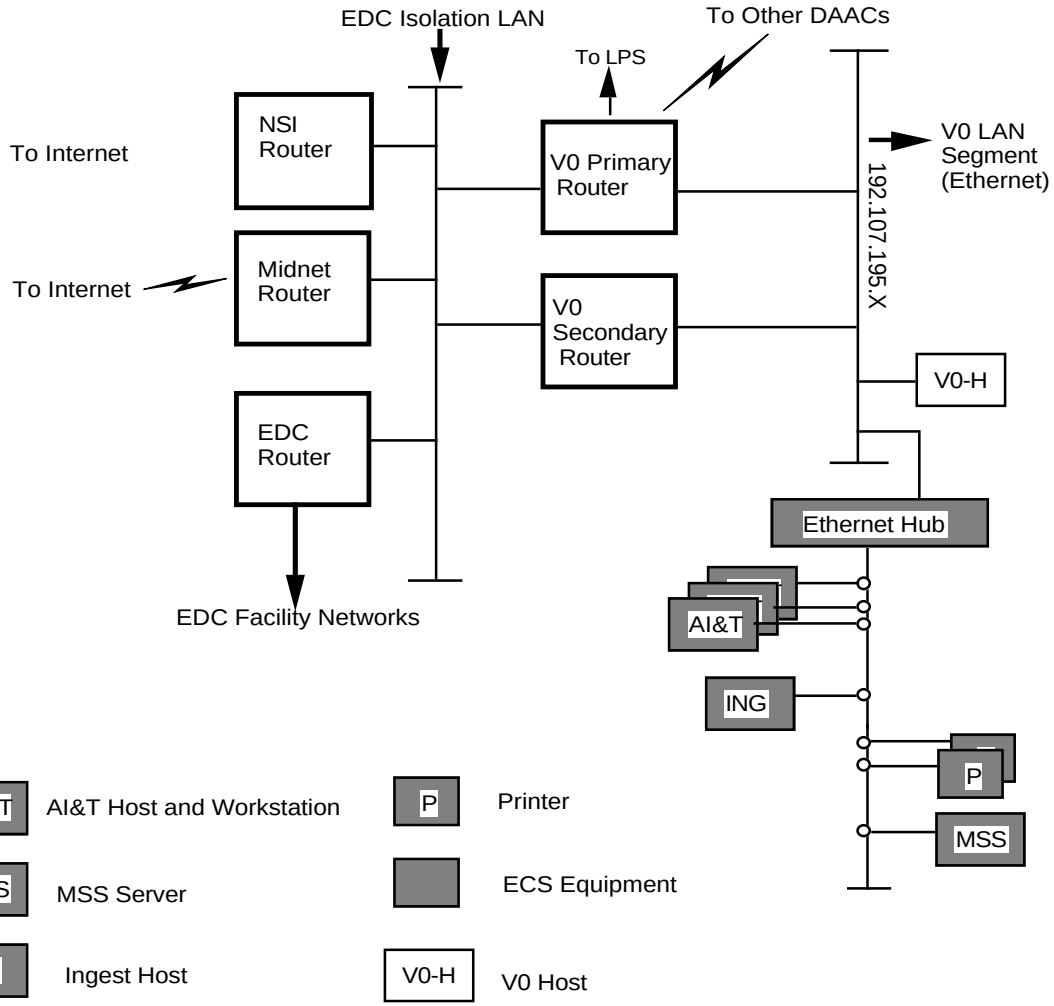
MSFC Release A DAAC Network

Release A DAAC LAN at MSFC



- **MSFC DAAC activities that the DAAC network will support during RA include:**
  - **L0 data ingest for TRMM/LIS**
  - **Processing for TRMM/LIS**
  - **V0 data migration**
  - **Archival and distribution of TSDIS products**
- **The GHCC IsoLAN (currently Ethernet) will support ECS and NSI traffic exchange**
- **NOLAN routers will directly connect to the L0 Ingest FDDI segment**

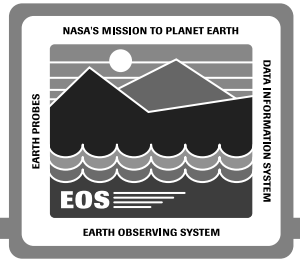
Release A DAAC LAN at EDC



ECS RA Activities at EDC

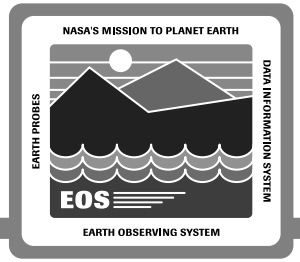
- **Same configuration as IR-1 except for the addition of an ingest host**
- **AM-1 (ASTER) AI&T**
- **An ingest host will be added (ingest testing with Landsat)**

Design Summary



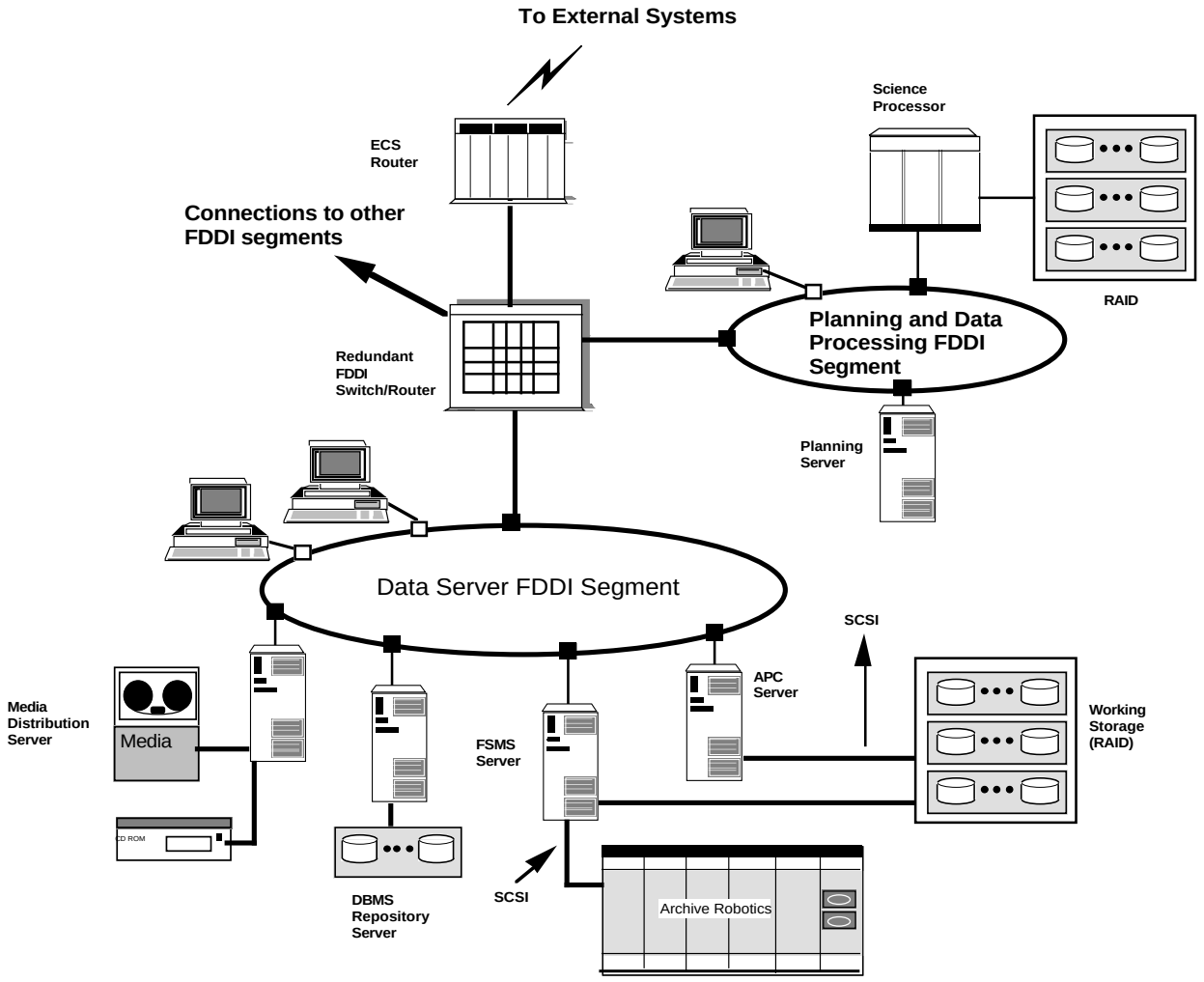
- FDDI LANs will be able to support the bandwidth needs for Release A
- Workstation to server/processor traffic within a subsystem is localized
- RMA requirements will be met using FDDI's inherent redundancy as well as use of devices with redundant components
- Using network level filtering and physical isolation, those segments that are off limits will be secure
- The design is flexible. Rings and nodes can be added as the growth requires (scalable)
- The configuration allows for Release B insertion of existing high speed network technologies (HiPPI) but also emerging technologies (ATM and Fiber Channel)
- Effective network management is accomplished using devices with SNMP support. The LSM has direct access to all subsystems

Migration Strategy

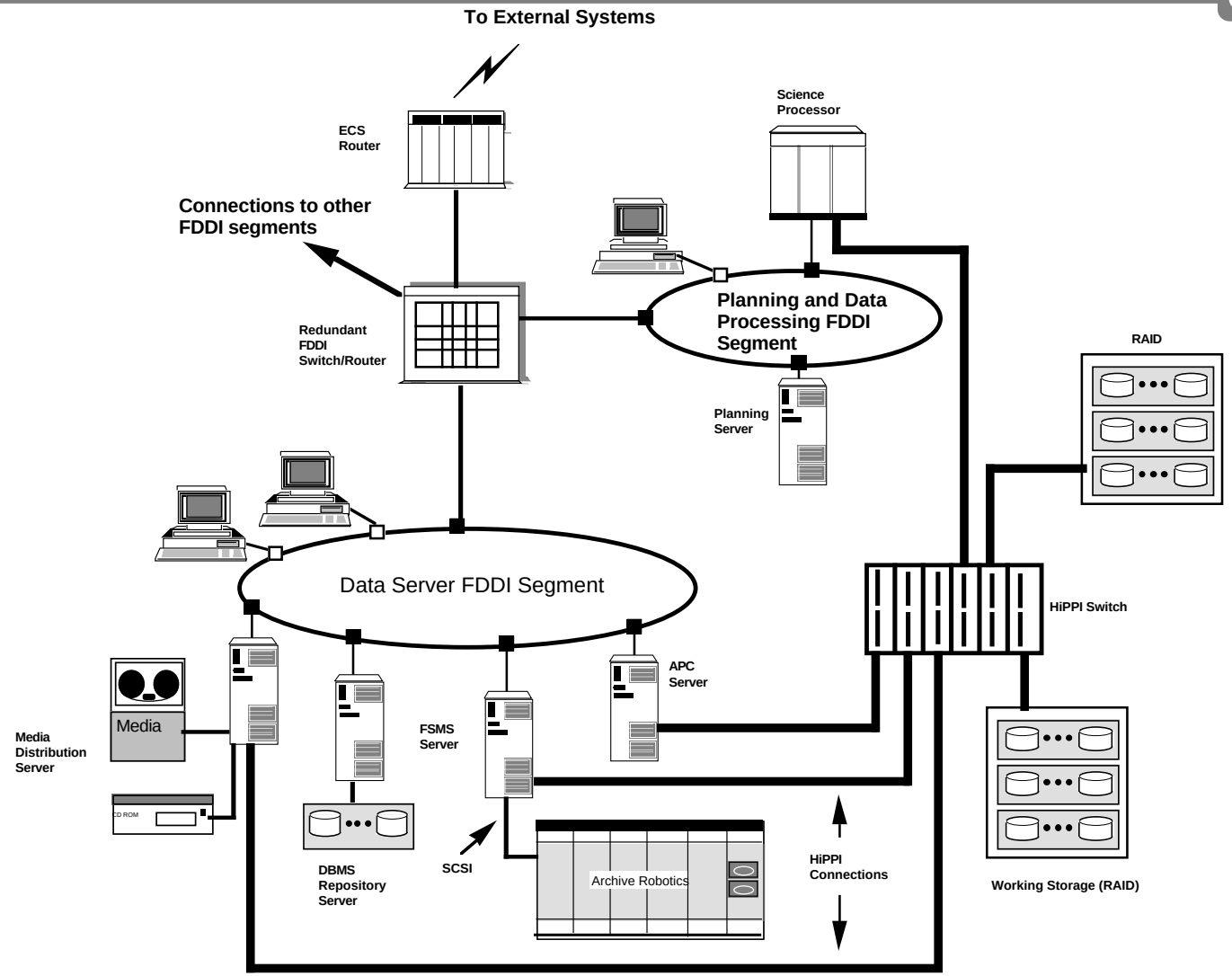


- **For speeds over 100 Mbps:**
  - **HiPPI is a mature technology today**
  - **ATM implementations are becoming widespread, but many issues remain to be resolved**
  - **Fibre Channel is not widely implemented**
- **ATM will not be used for Release A LANs. The next decision point is Release B IDR (late 1995).**
- **CSMS will prototype/benchmark ATM LAN equipment over the next several months, focusing on:**
  - **Performance**
  - **LAN emulation**
  - **Network management**
  - **QoS (bandwidth guarantees)**
- **Release A LAN configurations allow the insertion of high speed network technology (both existing and emerging ones)**

Migration Strategy



Migration Strategy



Possible Release B Configuration